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# **SUB-STATE CLIMATE PIONEERS: THE CASE OF SCOTLAND**

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## **ABSTRACT:**

Climate change poses a global challenge, but many of the most ambitious and innovative efforts to confront it have emerged from the sub-state level. While such action has received significant attention in North America, less attention has been paid to European sub-state nations and regions, even though several of these regions are at the forefront of policy efforts to reduce carbon emissions and promote renewable energy. This article begins to fill that knowledge gap. It explores the puzzle as to why, and how, given their more limited scope for policy action, some sub-state governments position themselves as ‘climate pioneers’. The article undertakes a heuristic case study of Scotland, which has developed a particularly ambitious climate change and renewable energy programme. Drawing on public policy literature, we use the case study to consider the extent to which such ambition is enabled by constitutional and fiscal capacity, facilitated by a cohesive policy network, and motivated by economic and political goals. While we find evidence of these enabling features in the Scottish case, we argue that understanding sub-state climate action also necessitates examining such action through the lens of territorial politics. Adopting a territorial perspective highlights the opportunities, constraints and motivations associated with the politics of territorial identity and multi-level government.

## INTRODUCTION

National governments have struggled to agree comprehensive and binding targets to tackle global climate change. UN climate summits have fallen well short of achieving the strong, integrated, international action most scientists argue is necessary to address the impacts of continued global climate change. Below the international and national level, however, climate action is vibrant. In particular, sub-state nations and regions have grown to be significant players in recent years, with many developing their own initiatives to combat climate change. Such efforts have received growing academic attention in the United States, where innovations among US states and cities are well-documented (Burke and Ferguson, 2010; Engel, 2009; Moser, 2007; Pitt, 2010; Rabe, 2008; 2011). Far less attention has been paid to climate change policy among sub-state governments in Europe. Yet, these governments play a key role in facilitating (or hampering) the climate change mitigation targets set by decision-makers at a higher level, including European Union (EU) programmes and directives. Moreover, many sub-state governments in Europe have not confined themselves to the role of implementers of policy set by higher authorities; several of Europe's leading legislative regions have assumed the role of what we call '*climate pioneers*' – actors who develop initiatives that entail markedly more ambitious policy goals and further practical policy experimentation than usually found at the national or supranational level (Galarraaga, et al. 2011; Hoffman, 2011).

In this article, we seek to explore climate ambition at the sub-state level by undertaking a heuristic case study of Scotland, one of Europe's leading sub-state nations at the forefront of policy initiatives designed to mitigate climate change and encourage a transition to a low carbon economy. We focus on two areas of policy output – emissions reduction and renewable energy – where the Scottish Government has been especially ambitious. Legislative devolution was introduced to Scotland in 1999, establishing a Scottish Parliament with legislative autonomy over

a wide range of domestic policies, including some policy fields linked to climate change. However, in Scotland, as elsewhere, climate change policy defies strict constitutional demarcations. Scottish policy is shaped – and often limited - by the resources, decisions and parameters set by national and supranational authorities. The level of activity of, and priority given by, the Scottish government in this sphere makes Scotland an interesting study in its own right. However, we also use our case study to explore the puzzle as to why, and how, given their more limited scope for policy action, some sub-state governments have positioned themselves at the forefront of pioneering policy initiatives intended to mitigate climate change. What resources do sub-state governments have at their disposal to facilitate policy innovation? Are the motivations behind their policy ambitions similar to those underpinning pioneering behavior among national level front-runners? Or are there particular territorial explanations as to why governments at the sub-state level become climate pioneers?

To address these questions, we develop an analytical framework which identifies the general factors underpinning policy leadership in the climate arena. We draw broadly on public policy literature which presents competing explanations for policy development (see John 2012), but focus specifically on literature exploring pioneering behaviour in environmental policy among nation-states and in the EU. This literature points towards a broad range of constitutional, economic, social and political factors to explain why some countries are leaders and others lag behind in the environmental and climate policy arena (Héritier, 1996; Liefferink and Andersen, 1998; Scruggs, 2003). We adapt these factors to the sub-state level, but suggest that these are likely to provide only a partial account of policy ambition. We anticipate that pioneering behaviour at the sub-state level also requires insights drawn from the literature on territorial politics to highlight the multi-level constraints shaping policy development, and the territorial ambitions and resources driving innovation. Our case study examines the explanatory potential of

each of the factors highlighted in the analytical framework. In so doing, we find that adapting existing explanations can go some way to explaining climate ambition in Scotland, but we also argue that pioneering behavior is also a useful means by which the Scottish government has asserted its territorial distinctiveness on the national and international stage, and used its natural resource capacities to assert and reinforce the demand for self-government. The article concludes by developing hypotheses that may be applied in other case and comparative studies of climate action among sub-state governments.

## UNDERSTANDING SUB-STATE PIONEERS

Numerous studies have sought to explain why some nation-states emerge as pioneers - or ‘pace-setters’, ‘forerunners’ or ‘first movers’ - in environmental and climate policy (Börzel, 2002; Héritier, 1996; Jänicke, 2005; Lenschow, *et al.*, 2005; Liefferink, *et al.*, 2009; Liefferink and Andersen, 1998; Sbragia, 1996; Scruggs, 2003). These insights are useful and we incorporate them into our analytical framework. However, they adopt a narrow focus on the nation-state as the core locus of activity. For instance, Jänicke (2005: 132-3) suggests that *nation-states* are uniquely placed to lead in environmental policy because of their relatively high policy capacity with respect to financial resources, personnel, professional competence and coercive power. But assumptions that *national* governments, economies and societies are the pre-eminent unit of analysis arguably falls foul of ‘methodological nationalism’ (Wimmer and Glick Schiller, 2002) by taking the nation-state as the natural and most appropriate focus of research, and by ignoring the explicitly multi-level character of this policy field. Wimmer and Glick Schiller bemoaned the obsession of social scientists for describing and examining social and political processes within the ‘container’ of the nation-state, arguing that as a result they lost sight of the connections between these nationally-bounded territories (2002: 307). We might equally suggest that such methodological

nationalism loses sight of the variations within nation-states, which the rise of regional authority has rendered more visible (Hooghe, *et al.*, 2010; Jeffery and Wincott, 2010).

Studies of climate action among nation-states remain useful as a starting point to explain why *any* level of government would become a climate pioneer. To avoid the trap of methodological regionalism and giving undue paramountcy to region-specific features, we draw upon and adapt state-level explanations to the regional level in our framework set out below. Insight can also be gained from the rich pool of environmental federalism literature which has emerged to explain sub-federal climate action in Canada (Harrison 2007; Hoffman 2011; Selin and vanDeveer 2009) and especially in the United States, where the unwillingness of the Bush administration, and the inability of the Obama administration, to make significant headway on climate change mitigation has prompted pioneering activity among numerous states (Derthick 2010; Engel, 2009; Moser, 2007; Posner, 2010; Rabe, 2011). We draw upon the explanations offered by both of these sets of literature to develop potential explanations for sub-state climate ambition in Europe. However, we supplement these explanations with particular insights drawn from the literature on territorial politics to help explain why some sub-state nations and regions may be particularly inclined to pursue ambitious climate policies and programmes.

### *Capacity for Action*

One of the most important factors contributing to pioneering behavior is the ‘capacity for action’ (Jänicke, 2005; Liefferink et al., 2009). Capacity can be defined broadly to include (i) the constitutional authority to act in a given sphere and (ii) the fiscal autonomy to raise revenue and/or direct investment towards policy goals. Applied to the national level, capacity encompasses the legitimate political and jurisdictional authority, knowledge and resource base with which to make

policy, the authority to raise revenue or design tax systems towards policy goals, and the ability – formal and informal - to engage and co-operate within international forums, including the EU.

At the sub-state level, capacity above refers primarily to *regional* authority (Hooghe, *et al.*, 2008) which can include both self-rule (regional constitutional competence, policy scope and revenue-raising and spending autonomy) and ‘shared rule’, measured by the formal mechanisms for influencing policy, constitutional and fiscal decisions taken at higher levels. Such capacity varies across states. Some sub-state governments, like the Canadian provinces, have jurisdiction over energy policy, and thus capacity to shape the energy market, while in other nation-states, like the UK, energy policy is mainly the preserve of the national government. In some multi-level states, the primary responsibility of the sub-state level is merely to implement decisions taken at higher levels, limiting the scope for sub-state innovation. By contrast, sub-state governments with high levels of ‘shared power’, as in Belgium and Germany, can shape, or obstruct, national decision making in a wide range of policy spheres, including those which shape a state’s response to climate change.

### *Economic Motivation*

Cross-national comparisons of environmental leaders and laggards have identified strong links between economic development and pioneering behaviour. Indeed, for Börzel, the level of economic development was the key factor determining whether EU member states were at the forefront of environmental policy outputs, especially in the area of environmental regulation (Börzel, 2002; see also Jänicke, 2005). Literature on state pioneers suggests that environmental pioneers are often motivated by the economic gains that may accrue from being at the forefront of policy development, especially where this involves technological innovation and export opportunities. For example, Denmark and Germany, two of the most prominent environmental

‘pioneers’ in Europe, were among the first to manufacture on-shore wind turbines. In the field of renewable energy, in particular, states with the greatest natural resource capacity may also be motivated to act as ‘renewables pioneers’ precisely because of the competitive advantage such investment could bring (Porter, 1990). These economic motivations are evident at the sub-state level too. Rabe (2011) suggests that US states demonstrating pioneering climate policies have been at least as motivated by the chance to exploit strategic economic advantage as by carbon reduction or broader environmental goals. A similar phenomenon can be observed among city climate champions, who see climate policies as an opportunity for enhancing ‘smart growth’, as well as potentially generating cost-savings (Bulkeley and Betsill, 2003; Sippel and Jenssen, 2010).

### *Policy Networks*

Climate and energy innovation is also heavily reliant on the willingness and support of networks of civil society actors, including industry, labour, experts and NGOs. Jänicke (2005) highlighted how expert advice from scientists, economists and engineers can guide governments seeking to set policy goals that are reliant on technological innovation. Scruggs’ (2003) suggested innovative or far-reaching environmental action is more likely in states marked by neo-corporatist bargaining between employers, labour unions, industry representatives, and government officials. Such bargaining helps create the consensus needed for environmental innovation and change (see also Liefferink, *et al.*, 2009). Industry and scientific experts can more directly shape policy action through their participation in influential advisory boards (Liefferink and Anderson, 1998). More broadly, environmental activists, green parties and NGOs have been identified as important civil society actors expressing and encouraging strong public support for environmental innovation and policy learning (Scruggs, 2003; Lenschow, *et al.*, 2005; Bomberg, 2009). Civil society’s role is often described as taking place within policy networks – collections of stakeholders featuring an informal exchange of information, access and resources (Marsh 1998; Peterson 2009). Such



informal exchange fosters shared knowledge, compromise and consensus among diverse actors within and beyond government to work collectively to address policy challenges. Most of the policy networks literature focuses on state-wide level activity, but these networks are found at sub-state level too (Keating *et al.*, 2009). Indeed, small highly solidaristic nations and regions with a strong shared sense of territorial distinctiveness may be better placed to support interest mediation, compromise and co-operation between key stakeholders by fostering mutual trust and common territorial goals (Rhodes, 1996: 169).

### *Multi-level Dynamics*

Much of the literature examining pioneering behaviour among national governments in the EU recognizes the multi-level character of this policy arena. Many scholars portray such behaviour as a ‘two-level game’, aiming not just to spur innovation at home, but also to raise regulatory standards internationally (Börzel, 2002; Liefferink and Andersen, 1998; Sbragia, 1996). Policy pioneers seek ‘first mover advantage’ (Héritier, 1994), to ensure that standards adopted within supranational or international forums reflect their preferences and practices. In the European Union, in particular, ensuring a level playing field in ‘their’ area of innovation helps pioneers to avoid the costs of legal and institutional adjustments in the wake of EU regulation, while maximizing opportunities for those domestic industries marketing technologies suited to the new regulatory framework (Héritier, 1994: 151; see also Vogel 1995; Halpern, 2010).

Member-state governments are clearly the key players in EU decision-making, but sub-state governments can also shape European policy-making, sometimes directly through regional offices in Brussels or the Committee of the Regions, but more often indirectly by shaping their member-state government’s negotiating position (Bomberg and Peterson, 1998; Hooghe and Marks, 2001; Van den Brande, 2011). In climate policy, in particular, international coalitions of sub-state

governments have sought direct access to the European Commission through advocacy groups such as the Climate Group and the Network of Regional Governments for Sustainable Development (nrg4sd), albeit thus far with limited results (Happaerts, *et al.*, 2010). Nonetheless, sub-state pioneers clearly participate in a three-level game, seeking the same strategic advantages as other ‘first movers’ by maximising the domestic opportunities and minimizing implementation costs associated with both national *and* supranational regulation. Sub-state governments are bound by the international obligations undertaken by their national governments, and are often dependent upon the domestic policy decisions they make with respect to finance and investment in low carbon technologies, the design and regulation of the energy market, or the regulation of domestic energy consumption.

Sub-state activities are not entirely determined by ‘higher level’ action: a striking feature of multi-level systems is the extent to which action at one level of government can progress (indeed thrive) even if action at the other levels remains stymied. This has been a particular feature of sub-federal climate action in the United States. During the administration of George W Bush, the US federal government’s climate inaction created ‘an open intergovernmental field for state government engagement’ (Rabe, 2011; see also Derthick 2010), leading to extensive state-level innovation. This activity has included ambitious emissions reduction programmes among some states, collaborative cap-and-trade schemes and ‘renewable portfolio standards’ to facilitate and incentivize the transition away from fossil fuels (Burke and Ferguson 2010; Moser, 2007; Rabe, 2008; 2011; Kretzschmar and Whitford, 2012). Such initiatives, notwithstanding their variable degree of success, can serve to jump-start policy action by higher levels of government (Posner, 2010), or can act as a ‘floor’, or a ‘backstop when the federal government fails to regulate’ (Engels, 2009: 450).

### *The Politics of Territorial Identity*

Our final explanation of sub-state pioneering behaviour emerges not from national level studies, but from the literature on territorial politics. In sub-state nations and regions, debates over the direction of public policy are often shaped by the politics of territorial identity. Governments engaging in policy making within strong identity nations and regions often frame their goals and demands as an opportunity to maximize the region's autonomy and its voice and status within the larger state and beyond. This dynamic is especially strong in those territories where demands for more self-government are high on the political agenda, or where strong sub-state nationalist parties ensure that the territorial cleavage remains at least as strong as more conventional ideological cleavages. By adopting the role of climate pioneer, a sub-state government can reinforce its territory's distinctiveness, assert the political importance of the sub-state level, and use the economic opportunities offered by low carbon innovation and renewables as justification for the pursuit of greater political autonomy. In addition, sub-state governments engaging in international climate forums or networks often see these as opportunities to appear 'state-like', giving them a profile on the world stage as well as enhancing their status with a home audience (Happaerts, *et al.*, 2010: 130; Lecours, 2002: 100-102). As such, these forums not only offer opportunities to engage in multilateral decision-making and networking, but can contribute to strengthening territorial identity and nation-building. Climate and energy policy may be especially open to territorial politics; political leaders can make emotive associations with 'our' land and seas that are being exploited and polluted, or 'our' natural resources which are being harnessed. Territorial identity is collectively constructed and reinforced within such political discourse, and is also an expression of how individuals define themselves and their relationships with others. A population with a strong and distinctive sense of shared identity can represent a less tangible but tremendous resource to a government, or a movement, seeking to mobilize support for an ambitious policy

agenda, because of the feelings of solidarity and mutual trust such identity can generate (Calhoun, 1994; Guibernau, 1999; McEwen, 2005)

Thus, existing literature points towards several factors that underpin pioneering behaviour in national climate policy, and we anticipate that these also motivate sub-state policy actors. Ambitious policy-making is easier to achieve with the constitutional and fiscal capacity to support innovation. Sub-state governments producing policy outputs focused on low carbon futures may, like their national counterparts, be motivated by material incentives to promote key industries and export potential. And their policy programmes may be shaped and facilitated by close collaboration with non-governmental actors within the broader policy network, as well as the political pressure from environmentalists. However, sub-state governments are almost always constitutionally weaker than states, with a more limited range of policy and fiscal capacities, usually weaker bureaucracies and information resource strengths, and an often greater susceptibility to economic and political pressures from national and international developments (Keating and McEwen, 2005: 414-5). They are compelled and constrained by a multi-level political and institutional environment, though they may have additional non-constitutional and non-material resources at their disposal to aid policy innovation, including the shared solidarity and territorial distinctiveness that comes from being a sub-state nation or region within a larger polity. The explanatory power of each of these factors will be assessed in relation to our Scottish case study, with a view to generating hypotheses that other scholars may wish to apply to broader comparative studies to explain why some sub-state nations and regions are climate pioneers while others may lag behind.

## METHODOLOGY AND CASE SELECTION

This article conducts a single case study of Scotland, a sub-state nation within the EU at the forefront of policy outputs directed towards climate change mitigation and renewable energy. Its

action is far from unique. The existing literature documenting sub-state climate ambition has emerged mostly from the United States, where states from California to Vermont have developed their own carbon reduction schemes, or joined forces to co-ordinate their efforts. The most notable of these is the Regional Greenhouse Gas Initiative, involving nine north-east and mid-Atlantic states in a mandatory cap, reduce and trade scheme to lower carbon emissions (see Greenwald 2013; Kretzschmar and Whitford, 2012). Globally, sub-state nations and regions committed to climate change mitigation have come together in groups such as the Climate Group States and Regions Alliance and the Network of Regional Governments for Sustainable Development (nrg4sd), both to share best practice and to lobby higher authorities for stronger action at the supranational and international levels (Happaerts, *et al.*, 2010). Involvement in such networks may reflect their lack of ability to influence national policy, but it nonetheless permits an international presence and profile. Many of Europe's leading regions are at the forefront of these organisations. For example, the post of Catalan Minister for Territory and Sustainability goes hand in hand with being nrg4sd's co-chair for the North. Of the 23 full members of the Climate Group's States and Regions Alliance, 13 are in the EU, including strong identity nations and regions such as Catalonia, the Basque country, Bavaria, Brittany, Wales, as well as Scotland, with the Basque country acting as co-chair (Climate Group, 2011). These regions are implementing a range of innovative policies placing them at the forefront of climate action. The Basque country, for instance, introduced the first climate legislation in Spain as part of their comprehensive sustainable development strategy (Gobierno Vasco, 2011). Similarly, both the Catalan and Bavarian governments have introduced a raft of policies designed to reduce energy demand and dependence on fossil fuels, or expand the use of renewables (Climate Group, 2012).

Yet, we know very little about the motivations that underpin such action on the part of sub-state nations and regions. Why do they act, in spite of their limited constitutional competence and

capacity vis-à-vis national governments and the scale of the policy challenge? Why not cede the ground to national governments and supranational institutions? To help provide an explanation, we conduct a hypothesis-generating case study (Lijphart, 1971: 691), or what Eckstein referred to as a heuristic case study (1975: 104), of Scottish climate ambition in order to test some expectations and develop more robust hypotheses which can be utilized in comparative research. Comparative analysis is beyond the scope of this paper, but we consider in the conclusion how the hypotheses generated from the Scottish case may be applied in a comparative context.

An examination of Scottish policy development since the establishment of the Scottish Parliament in 1999 illustrates why Scotland may be characterized as a pioneer in energy and climate change. Although their predecessors had shown signs of climate ambition<sup>1</sup>, pioneering behaviour has been most evident since 2007, following the election of the Scottish National Party (SNP) to government. The government's bold policy goals have been most clearly manifest in targets and innovative schemes to reduce emissions reductions, and in particular increase the proportion of energy met from renewable sources.

The Climate Change (Scotland) Act (2009), introduced by the SNP government and skillfully shepherded through parliament where it was passed unanimously, imposed a statutory obligation to ensure a reduction in all greenhouse gas emissions by 42 percent by 2020 and 80 percent by 2050.<sup>2</sup> The Scottish Act is broader in scope and ambition than either the preceding Scottish Executive programmes, or the UK Climate Change Act (2008), and includes a higher interim target than the latter. It has far-reaching implications: it regulates the activities of government, the private sector and individuals; covers a wide array of devolved policies, including forestry, land use, the promotion of energy efficiency, waste reduction and recycling, as well as provisions for adapting to climate change; and obliges the government to set annual targets subject to

parliamentary approval. The 2011 report, *Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010-2022* acknowledged the scale of the challenge: Scottish emissions have fallen by 21.2 percent since 1990, but the additional 21 percent reduction will require new policies, not all of which fall within the constitutional competence of the Scottish government (Scottish Government, 2011a). Indeed, although the first annual target was missed in 2010<sup>3</sup> (due largely to an exceptionally cold winter), the the UK Committee on Climate Change confirmed the overall trend towards emissions reductions, praising in particular government initiatives to eliminate waste, reduce energy demand and tackle fuel poverty through investment in home insulation, and accelerate the use of renewable power and heat (Committee on Climate Change, 2013). Underlining Scotland's pioneer role, the Committee's chief executive noted 'A UK commitment on a 2030 carbon intensity target to mirror the Scottish commitment would be very beneficial for the investment climate' (quoted in Clark 2013).

The exploitation of Scotland's renewables potential is central to the Scottish government's climate ambitions, (Scottish Government 2011c). Scotland already has a substantial hydro capacity, stemming from an ambitious Scottish Office-led programme in the 1940s which transformed hydro-electricity in Scotland from its pioneering roots to a major nationalised industry. This existing capacity, combined with Scotland's evident potential to exploit the natural resource of onshore and offshore wind, has made it relatively easy for successive Scottish administrations to set targets for renewable electricity which exceed both UK and EU targets. The SNP government, in particular, has embraced the renewables agenda with increasing enthusiasm since its election in 2007. In 2008, it set a target of generating 50 percent of Scottish demand for electricity from renewable sources by 2020. By 2011, the target was to source *the equivalent of 100 percent* of Scotland's electricity consumption from renewable sources by 2020. These ambitious renewable electricity targets have increased the overall target for sourcing all energy requirements from

renewables from 20 percent to 30 percent by 2020, on a par with Denmark (30 percent) and Portugal (31 percent), but notably higher than most other EU member states, and higher than the overall UK target (set by the EU) of 15 percent of all energy from renewables by 2020 (Scottish Government, 2011b).<sup>4</sup>

Significant progress has been made in recent years. Between 2003 and 2011, renewable capacity in Scotland increased by 187 percent, with generation from renewables increasing by 269 percent over the same period. With 40% of the UK's renewable capacity and generation based in Scotland in 2011, including almost half the UK's wind power output, Scotland leads the way in the UK in renewable energy deployment (UK CCC, 2013: 18). Meeting the 2020 targets will require significant new installed capacity. To this end, the Scottish Government has introduced a range of initiatives and investments, over and above those implemented by the UK government, to support innovation, technological development, micro- and community-scale generation, and improve infrastructure for offshore development, alongside a political and planning framework conducive to renewables. In short, , in its emissions reduction and renewables ambitions the Scottish government has clearly sought to place Scotland at the forefront of low carbon innovation in Europe, making it an ideal case study to explore the motivations that underpin sub-state climate ambition.

The case study relies upon two main methods of data collection. First, we draw upon a wide range of documentary sources, including official policy documents, position papers, roadmaps and government reports, parliamentary debates and political speeches. Second, we conducted 35 semi-structured elite interviews with serving and retired government ministers, officials in the Scottish and UK governments and the European Commission, and representatives from the broader policy community, including the regulator, the business community, and a very active energy



charity/NGO sector. Interviews with officials were designed to enhance our knowledge of policy developments, to gain insight into the multi-level policy environment and intergovernmental negotiation, and to identify motivations underpinning policy goals. Interviews with policy actors from the broader policy community were intended to elicit the extent of engagement between these actors and the government, the degree of consensus underpinning policy outputs, and informed evaluation of the policies. Many of these were recorded,<sup>5</sup> and the resulting material was carefully analysed to help identify the extent to which policy outputs were underpinned by the factors outlined in our analytical framework.

## EXPLAINING SCOTLAND AS CLIMATE PIONEER

In this section, we seek to understand why, in spite of its position as one small sub-state entity facing a global policy challenge, devolved Scotland has positioned itself as a frontrunner in devising policy outputs to reduce carbon emissions and dependence on fossil fuels. We draw upon the framework set out above to assess the relative influence of constitutional and fiscal capacities, economic motivations, policy networks, multi-level government and the politics of territorial identity.

### *Capacity for action*

Governments seeking to engage in policy innovation require the capacity to make and implement policy decisions. In sub-state nations like Scotland, this capacity implies having the constitutional competence to make policy and legislative decisions, as well as the fiscal capacity to aid policy development, delivery and investment.

Under the terms of the devolution settlement, set out in the Scotland Act (1998), Scotland has full legislative and administrative competence in those areas that are not explicitly reserved to the

Westminster parliament and government. This division of constitutional powers gives the Scottish Parliament and, hence, the Scottish government significant control over a range of domestic powers which might be deployed to mitigate climate change. These include environment, transport, waste management, rural affairs, land use, housing, planning regulations and the *promotion* of renewable energy and energy efficiency. Scottish autonomy is further enhanced by powers that have been ‘executively devolved’, which means the Scottish government has been given responsibility to make executive decisions on particular matters, but not the power to make new law. The most significant in this field are the powers conferred by the UK Electricity Act (1989), including the power to grant or withhold consent for the construction of overhead transmission lines and new electricity generation. The latter has been invoked by the SNP government in its pledge to prevent any new nuclear power stations being built on Scottish soil. The Scottish government also negotiated discretion to modify the Renewables Obligation, currently the principal mechanism for promoting industry investment in renewable energy throughout the UK.<sup>6</sup>

There are, however, clear constitutional constraints, especially in relation to energy policy. The Scotland Act reserved to Westminster: control over the generation, distribution, transmission and supply of electricity; the ownership and exploitation of oil, gas and coal; and nuclear energy and nuclear installations. As a result, the Scottish government can do little to influence the system of transmission charging, which it has frequently argued inhibits renewable energy investment by imposing the highest grid connection charges on those generating energy in regions remote from highly populated urban centres. In addition, the sea bed up to 12 nautical miles from the shoreline – the location of potential sites for offshore wind, wave and tidal power – is controlled by the Crown Estate. This is a commercial organization which manages the property owned by ‘the Crown’ on behalf of the UK. The Scottish government is dependent upon the Crown Estate’s

willingness to lease sites for offshore generation, and has criticized its (and effectively the UK Treasury's) capacity to claim tax and leasing revenues from offshore developments in Scottish seas.

There are also clear fiscal constraints resulting from limited fiscal autonomy, inhibiting the Scottish government's ability to invest in research and infrastructure to facilitate the transition to a low carbon economy, or use taxation to encourage investment or modify behavior through 'green' taxes. Tax revenue is collected centrally in the UK, and around 90 percent of the Scottish government's budget comes in the form of a direct transfer – the Scottish block grant - from the UK Treasury (see Bell and Christie, 2007). The Scotland Act (2012), when fully implemented in 2015, will strengthen revenue-raising and borrowing capacity, but the overall effect is likely to be moderate rather than dramatic. Thus, the Scottish government remains dependent on the UK government for financial resources, for example, to support carbon capture and storage. The UK government and the energy regulator also oversee those regulatory policies designed to boost private investment in renewable energy.

These constraints have not prevented the Scottish government from pursuing an ambitious climate change and renewable energy programme, nor from promoting its ambitions nationally and internationally, but they have necessitated close collaboration and negotiation with UK authorities. Such collaboration is reported as cordial and positive (interviews with officials in Scottish government and DECC, 22-28 September 2011), but it remains informal; intergovernmental co-ordination remains characterized by low levels of institutionalization (McEwen *et al*, 2012). In pursuing its broader agenda for constitutional change, aimed at enhancing Scottish self-government, the SNP government has prioritized more powers over energy policy. For example, following its re-election in 2011, the SNP demanded (unsuccessfully thus far) that the powers of

the Crown Estate be devolved to the Scottish Parliament, to facilitate the promotion of offshore and onshore renewables and accrue directly the resulting revenues this would bring. One of the papers emerging from the SNP government's *National Conversation* on Scotland's constitutional future made the case for the transfer of energy powers (under enhanced devolution or Scottish independence) to ensure the development of a regulatory and policy framework more suited to Scottish priorities (Scottish government, 2009b), a call echoed by some other civil society groups who oppose independence (Reform Scotland, 2011). And notwithstanding its limited budget and fiscal capacity, the Scottish Government has prioritized spending on renewables, for example, through a £70 million National Renewables Infrastructure Plan, a £60 million capital budget to support renewable technology, a £35 million fund to support prototypes for next generation offshore wind turbines, and the flagship £10 million Saltire Prize, an international innovation prize to promote the deployment of marine renewables in Scotland, and a variety of funds to promote community energy and carbon reduction initiatives (Scottish Government, 2011b). Thus, the Scottish government has faced both constitutional and fiscal constraints on its capacity for action, but these have not deterred it from pursuing ambitious policy goals.

### *Economic Motivations*

Pioneering behaviour in energy and climate change has been associated with high levels of economic development, and a capacity to invest financially in low carbon technological innovations. Scotland may be among the most economically developed nations of Europe (see European Commission, 2010), but this in itself is an inadequate explanation for its climate and energy ambitions. A more powerful explanation can be found in the strategic economic motivations underpinning such action. More specifically, pioneering behaviour at either the national or sub-state level is often associated with a desire to create a competitive advantage for

domestic industry and exploit emerging markets in advanced technologies related to energy. Such economic incentives are clearly relevant to the Scottish case.

Scottish policy initiatives, such as the Saltire Prize and other investment programmes noted above, seek to promote technological innovation within Scotland, boost Scottish industry, and maximize the exploitation of the country's natural resources with a view to making Scotland a leading exporter of renewable energy. As the Scottish Finance Secretary noted, 'Being at the forefront of efforts to tackle climate change has the added benefit of bringing opportunities for Scottish businesses, developing and producing technology for use both here and abroad' (Swinney, 2007). Moreover, the Scottish government has estimated that achieving the 2020 renewables targets could provide 'up to 40,000 jobs and generate £30bn investment to the Scottish economy' (Scottish government, 2011b: 9). Although the absolute totals may be challenged, the scale of economic opportunity is largely supported by independent and industry estimates (Skills Development Scotland, 2011; Offshore Valuation Study, 2010).

It is notable, too, that when promoting renewable energy, the SNP government has frequently drawn parallels with the discovery of North Sea oil, the exploitation of which remains central to the SNP's economic *and* territorial objectives, as discussed below. Speaking at the launch of the Saltire Prize in Washington DC, First Minister Alex Salmond (2008) noted:

40 years ago, with the discovery of oil in the North Sea off Scotland's coast, Scotland won the natural lottery... And we are fortunate that Scotland's energy resources go far beyond hydrocarbons... Our powerful waters and our driving offshore winds are key to our future prosperity... we have won the natural lottery once again.

Renewable energy, like oil, is seen as a rich resource to be exploited for economic gain, as much if not more than an opportunity to fulfil low carbon ambitions. Indeed, that a low carbon agenda is pursued alongside a continued desire to exploit fossil fuels reveals that environmental concerns are not the principal driver of Scotland's renewable energy programme.

### *A Distinctive Policy Network*

Existing studies have pointed to the influence of environmental activists and other civil society actors from the scientific and business community, in encouraging and fostering innovation climate and energy policy (Scruggs 2003; Lenschow, *et al*, 2005; Lieffering, *et al.*, 2009). Although the Scottish Green Party's presence in the Scottish Parliament helps ensure environmental issues remain on the parliamentary agenda, with only two MSPs since 2007, its influence is minimal. By contrast, there is evidence to suggest that Scottish pioneering behaviour in both climate change and energy is significantly supported by a distinctive and relatively cohesive policy network comprised of a broad range of government and industry representatives, in particular, as well as labour unions, NGOs and other less formal environmental groups, sharing information, expertise and other resources.

For example, a wide range of NGOs joined forces with church and labour organizations to form a cohesive and effective coalition under the banner, *Stop Climate Chaos Scotland*. Through intense lobbying it put pressure on the political parties to raise their ambitions during the passage of the Climate Change (Scotland) Act (interview with SCC parliamentary officer, 28 Aug 2009). Key business players, especially those involved in the renewables industry, also pressed for ambitious targets, identifying an opportunity for business innovation and investment. Most notable was the Scottish Climate Change Business Delivery Group, led by Ian Marchant, then chief executive of SSE (Scottish and Southern Energy), one of the largest firms in Scotland and the UK. It used its

position in the network – especially its access to ministers and senior civil servants - to push for the 42 percent 2020 target in the final stages of the legislative process (interview with minister, 15 September 2011; interviews with senior officials, SSE, 10 January 2012). Motivated by a mix of individual and collective commitment and commercial gain, the Business Delivery Group has evolved into the 2020 Climate Group, a broader based coalition of industry leaders, academics, trade union leaders, local authority chief executives and NGO leaders. The 2020 Climate Group operates with the support of – but at arms’ length from – the Scottish government to identify and facilitate the changes in the public and commercial sectors necessary to fulfill Scotland’s climate ambitions (*ibid.*, see also <http://www.2020climategroup.org.uk/>).

Policy networks exist on all levels, but the Scottish network in this area is distinct. Particularly striking is the extent to which such networks are actively nurtured and led by the Scottish government. The Business Delivery Group was instigated by the Environment minister (then a Liberal Democrat). Under the SNP, the Scottish government has successfully brought together supportive business partners but also other stakeholders, to help shape energy policy. In 2010, the government set up the Energy Advisory Board, chaired by the First Minister, to bring together officials from central and local government, business leaders, the scientific community, consumer organisations and trade unions. It has been supported by several sectoral groups, including the Forum for Renewable Energy Development in Scotland (FREDS), chaired by the Energy Minister and with similar cooperation from the energy industry, academia and other stakeholders (interview with energy official, 17 August 2011; interview former minister, 29 August 2011). The intensity of government-network engagement may reflect the lack of policy capacity within the government bureaucracy, and thus a dependence on outside expertise. However, it also suggests the extent to which government, the business and scientific community are united in their shared ambition and endeavour towards a low carbon future. Such informal bargaining and consensus building reflect a

form of networking often found among environmental pioneers states. What makes this case distinctive is the territorial scale at which this network operates, and the clear steer given to it by the Scottish government.

### *Multi-level Drivers*

The existing literature suggests that environmental pioneers are engaged in a ‘two-level game’, focused not just on innovation at home, but also on pushing for change at a higher level. Within the EU, pioneers have sought to upload their preferences to supranational and international fora, both to minimize their own adjustment costs and maximize their competitive advantage. In the US, the federal government’s climate inaction led to a blossoming of innovation among US states.

While our case study revealed the importance of multi-level drivers, their effect was distinctive. In contrast to the United States, Scottish climate action has not emerged in the face of inaction by either the UK government or the EU. At least with respect to policy discourse, outputs and international engagement, the UK government has itself been at the forefront of climate mitigation, even if domestic policy outcomes have some way to go to achieve ambitions (Carter, 2008; Lovell, *et al.* 2009; Committee on Climate Change, 2012). The UK Climate Change Act in 2008 also has ambitious mandatory emissions reduction targets, alongside relatively ambitious renewable energy targets. The EU, meanwhile, has actively developed mandatory targets in emissions reductions, energy efficiency and renewable energy among its member-states, and has pushed for stricter regulations in international climate change negotiations. In short, Scottish action cannot be explained by the ‘compensatory’ dynamic which has been used to account for climate innovation among many US states and Canadian provinces.

Nonetheless, Scottish policy making is very much shaped and constrained by the multi-level context, which sees the Scottish government engaged in a three-level game, seeking to influence



policy outputs of both the UK government and European Union. The constitutional constraints within which Scottish climate policy is made demand that the Scottish government lobby the UK government, the Crown Estate and Ofgem (the energy regulator) when attempting to shape the regulatory framework surrounding energy, and significant effort is invested in doing so (interview with UK and Scottish officials, 23 September 2011; 28 September 2011). For example, a key priority of the Scottish government has been to seek changes to the transmission charging regime (constitutionally the preserve of the UK government) so that renewable energy investment in remote highlands and islands regions is better supported. Given its status as a regional government in the European Union, the Scottish government must also cooperate with the UK government to try to influence EU climate and energy policy indirectly. Only member states have a formal voice within the European Council. Where concessions are sought - such as the derogation from state aid regulation to permit the Scottish Renewable Obligation Certificates to give added investment to marine renewables (interview with Scottish Government official, 24 June 2010) - agreement must first be secured by the UK government, who must then negotiate with the Commission on Scotland's behalf.

European regions also invest in direct engagement with EU institutions, and Scotland is no exception. The Scottish government has made climate change and energy top priorities in its European engagement strategy, rivaled in importance only by fishing (Scottish Government, 2009b). It established the Scottish European Green Energy Centre (SEGEC) to support academics, government and the energy industry in their efforts to access EU funds for green energy projects, with some notable successes. It has nurtured relations between senior ministers, European Commissioners and senior officials, and increasingly European Parliamentarians to advance Scottish interests in climate change and renewable energy (interview with special adviser, 8 August 2011; interview with former minister, 29 August 2011). Much activity in Brussels is

focused on raising Scotland's profile within EU institutions and among other member-state representatives as a leader in climate and energy policy, advancing Scottish interests, for example, in marine renewables and carbon capture and storage, and maximizing the extent to which it is seen as a 'serious player' in low carbon energy policy (interview with Scottish government official, 31 March 2012). According to senior officials working within DG Energy, the ambitions of the Scottish government in renewable energy and climate change have been heard 'loud and clear'. The Commission, in turn, is keen to support Scotland's clear comparative advantage in onshore wind and marine renewables, and use it as a positive example of low carbon innovation (interviews with Commission officials, 30 March 2011).

The supranational dimension of climate change policy thus presents opportunities for, but also constraints upon, the Scottish government's capacity to achieve its climate goals. Most constraining, perhaps, are the parameters set by the EU Emissions Trading Scheme. Around 40 percent of Scotland's emissions come from those industries that fall within the 'traded sector', and their emissions allowances are thus set by the EU scheme. Without an increase in the overall EU emissions reduction target from 20 percent to 30 percent, achieving the more ambitious Scottish emissions reduction targets will be extremely difficult, if not impossible (Committee on Climate Change, 2013). Consequently, the Scottish government has used every opportunity to push for a higher EU target, often in collaboration with the UK government (interview with official, 31 March 2011; interview with Scottish government minister, 15 September 2011).

### *The Politics of Territorial Identity*

Governments in sub-state nations and regions with a strong sense of territorial distinctiveness often seek to accentuate that distinctiveness, and to maximize and enhance their political autonomy. Scotland's devolved institutions are new but they provide political representation for an

historic and distinctive nation within the United Kingdom. Even before the election of the SNP government in 2007, a desire to be more ambitious than the UK government was evident in devolved Scotland's climate change programme. Later, the SNP government's separate Scottish climate change legislation – arguably unnecessary as Scotland is already bound by the UK Climate Change Act and the UK's EU obligations - was justified to reflect Scotland's distinctive needs and potential, as well as being 'a further demonstration of the leadership we want to provide to the rest of the world' (Scottish Government, 2008: 11). The ambitious legislation also played to a desire to be seen as more progressive than their UK counterparts, and a 'step ahead' of the UK government in policy innovation (interview with special adviser, 14 June 2009). This desire not only pervades the Scottish National Party; it is to some extent evident too within the Scottish Labour Party, the SNP's main political rival. Indeed, a game of political one-upmanship between the SNP and Labour during the passage of the climate change legislation – exploited effectively by environmental activists – helped encourage a 'race to the top' in the setting of targets, which ultimately resulted in unanimous agreement of one the world's most ambitious greenhouse reduction targets.<sup>7</sup>

All political parties in Scotland seeking electoral success must accentuate their Scottish credentials and their ability to bat for Scotland within the United Kingdom, but territorial self-government is at the SNP's core. The SNP sees Scotland not as a region of the UK or even of Europe, but as a nation with an entitlement to statehood. Scottish independence is the party's primary ambition, and its election as a majority government has led directly to the referendum on independence, scheduled for September 2014. The desire to maximize energy self-government is seen as an end in itself, to enhance the capacity to shape 'the totality of policy', engage directly with the EU as a member-state, and gain credence among the key players in the industry and internationally (interview with former minister, 29 August 2011). But issues of energy and climate change are

also implicitly, and sometimes explicitly, bound up with broader self-government goals. Addressing the *Scottish Low Carbon Investment* conference in 2010, First Minister Alex Salmond linked his government's renewable energy programme to a desire for greater constitutional capacity, in this case, over the Crown Estate (discussed above):

as we look on the cusp of this energy revolution, there are huge bonuses in terms of jobs and technology and the economy. But the only organization that currently directly benefits from the use of resources on land, the sea, the waves and the winds is The Crown Estate... it seems to me self-evident that the revenues from The Crown Estate should flow to the Scottish Government, to the Scottish Parliament, to the Scottish people as an endowment, as opposed to the Treasury (Salmond, 2010a).

In October 2011, the First Minister opened his speech to his party's conference on the issue of climate change – 'the greatest issue facing this planet' – and used it as evidence of Scotland's self-governing potential: 'So, given that by international acclaim we have handled this mighty issue so well as a parliament, what possible argument could there be that the Scottish Parliament is not capable of discharging ALL of the issues facing the Scottish people?' (Salmond, 2011).

Successful nationalist mobilization is often supported by the promise of economic prosperity (Keating, 2001). The promotion of renewable energy as a route to re-industrialising Scotland is at least in part intended to fuel the demand for Scottish self-government, and to ease concerns about its economic consequences. In this regard, the frequent parallels drawn with the discovery of North Sea oil are notable. Just as oil was and remains a potent symbol of the SNP's economically-driven nationalism, so too does renewable energy and the transition to a low carbon economy hold the promise of an independent Scotland with energy security and energy wealth.

The existing literature on pioneering behavior among European nation-states and US states can thus go some way to explaining why a European regional government like the Scottish government would set pioneering climate goals, but it cannot offer a full explanation for the extent and character of climate ambition among Europe's leading sub-state nations. The Scottish case illustrates the enduring importance of institutional, fiscal and policy capacity, but also the ways in which actors can overcome constraints by the deft use of policy networks, skilful navigation of the multi-level policy environment, and by emphasizing its non-constitutional and natural energy resources. Furthermore, the case confirms that pioneering action may be driven as much, if not more, by economic advantage and the exploitation of economic opportunities as by environmental principles. Economic motivations are certainly more evident than 'green' ambitions in the Scottish case. Our case study also points towards the importance of broader territorial and political interests underpinning climate action at the sub-state level. In contrast to US states, these interests did not emerge in Scotland as a result of the inaction of the UK government or the EU; indeed they appear to be unrelated to the level of ambition evident at a higher level. The politics of renewable energy and climate change has offered the Scottish government the opportunity to assert its territorial distinctiveness on the national and international stage, and to use its policy levers to assert and reinforce the demand for self-government.

## CONCLUSION

The policy ambitions highlighted in the Scottish case are part of a broader phenomenon: climate governance requires action on, and invites innovation across, multiple governmental scales (Ostrom, 2010). Many sub-state governments have become increasingly bold, introducing policy

initiatives neglected or absent at higher levels. Not all sub-state governments are pioneers, of course; some may be laggards, slowing the pace of climate change mitigation at the national level. For instance, the Canadian provinces of Alberta and Saskatchewan have at times played this role (Harrison, 2007). All sub-state governments are affected, to some degree, by climate change, but many may be content to leave national and supranational institutions to set the policy agenda. In this concluding section, we use the findings of our case study to develop some hypotheses to explain why some sub-state governments have positioned themselves at the forefront of pioneering policy initiatives intended to mitigate climate change.

First, our case study, coupled with the broader literature, suggests that sub-state governments will be more likely to pursue ambitious policy goals when they have the constitutional capacity to develop distinctive policies, the fiscal capacity to invest, and the natural, renewable resource capacity to exploit. The latter may also be linked to economic motivations if resource capacity also brings advantages for manufacturing industries or home-based energy suppliers. Those sub-state nations and regions most active on the national and international stage – including Scotland, the Basque country, Catalonia, Flanders, Wallonia, North Rhine Westphalia, Baden-Württemberg, Quebec, British Columbia – are among the most powerful constitutionally, with high degrees of ‘self-rule’ (see Bruyninckx, *et al.*, 2012). Resource capacities and economic motivations are also evident in the capacity to exploit non-fossil fuels, for example the substantial existing hydro capacity in Scotland and Quebec, or to maximize the capacity for technological innovation and export, as in the case of the aforementioned German Länder. It might be expected that the presence or absence of oil reserves may also matter; the importance of the oil and gas industry in Alberta and Saskatchewan may be a factor in their reluctance to sign up to emissions reduction targets. What is intriguing about the Scottish case, however, is that it includes an embrace of both

‘old’ and ‘new’ energy: renewable energy and emissions reductions are pursued alongside the evident desire to reap the rewards (following independence) of North Sea oil.

Our case study, and a glance at the most prominent players in the networks of regional governments discussed above, also suggests that strong identity nations and regions may be more likely than weak identity regions to pursue ambitious climate action. Although many strong identity regions are also strong constitutionally – potentially making it difficult to disentangle these variables – we can point to examples of pioneering climate action amongst strong identity regions with relatively weak constitutional capacity. Brittany and Wales, for example, have low ‘self-rule’ but nonetheless ambitious agendas. In Brittany, this has been evident in an ambitions for offshore renewables, energy efficiency programmes and investment in small scale renewable development through a unique public-private partnership fund (the Eilañ). In Wales, the devolved administration has carved out a distinctive profile in sustainable development, especially relating to international development, and has a statutory duty to promote sustainability (Royles, 2012).

There are two reasons why strong identity nations and regions may be found among climate pioneers. First, territorial distinctiveness can be a resource to help generate solidarity and consent among key players within a broader policy network, as well as among the broader public, potentially helping to overcome more formal capacity constraints. Second, sub-state nations and regions in the EU are bound by the targets and directives set at EU level. They cannot legally refuse to implement these agreements; either they or their member state would pay a heavy financial price for failing to fulfill EU obligations. Thus, the most effective way that a sub-state government seeking to assert territorial distinctiveness can do so in this policy arena is through demonstrating ambition by *exceeding* national and international targets.

Broader political factors may also underpin sub-state climate ambitions. Just as the presence of electorally strong green parties and green lobbies may foster environmental ambition at the national level, so too may we expect green party strength to correlate with sub-state ambition, as has been the case at both governmental levels in Germany. Green parties, however, are not especially strong among sub-state governments, pioneering or otherwise. The Scottish case study points towards other party political factors, suggesting a link between the pursuit of ambitious climate policies and the strength of parties pursuing territorial self-government. Although the Labour-Liberal Democrat government in office prior to 2007 also demonstrated some ambition within this policy sphere, and some of the measures since 2007 have secured unanimous support across parliamentary parties, there is no doubt that the election of an autonomist, pro-independence party to the Scottish government was associated with a step-change in the scale of ambition in the emissions reduction and renewable energy programmes. For parties seeking greater political autonomy or independent statehood, like the SNP in Scotland, climate ambition provides an opportunity to nurture perceptions of national prosperity and self-sufficiency, and to engage in ‘paradiplomacy’ to assert national autonomy and nurture their perception internationally as ‘nation-states in waiting’ (Lecours, 2002; Cornago, 2010).

Conversely, climate ambition can provide opportunities for those resisting self-government demands by enabling them to assert territorial distinctiveness on the national and international stage through non-constitutional means, but without the need for political independence. The climate leadership demonstrated by the former Quebec Liberal Premier, Jean Charest, both nationally and internationally, provides a useful example of a government keen to assert its national distinctiveness and autonomy while opposing the pro-sovereignty position of its main *Parti Québécois* rival. The socialist Basque government, in power until 2012, like its nationalist predecessor was also active in the international climate arena in recent years, and used the



opportunities of office to assert Basque leadership by developing a more overtly ambitious and extensive sustainable development strategy (Galarraaga, 2011; de la Peña Varona and Barcena Hinojal, 2012). In sub-state nations such as these, the desire to enhance distinctiveness and political autonomy is ever-present, and manifests itself in climate ambition, even if the goal of constitutional independence is in dispute. Thus, the presence of a strong autonomist party - in government or challenging government from the opposition benches - may be the key driver. Such a party can impose on the government, irrespective of the party in power, *the need to be seen* to defend and promote territorial interests, assert territorial distinctiveness and maximize decision-making autonomy. Pioneering climate action is but one avenue to pursue these broader political aims.

Testing the validity of these hypotheses obviously requires further comparative analysis, and is beyond the scope of this paper. What is clear, however, is that sub-state governments have emerged as significant players in this policy arena, and their action merits close academic scrutiny. The framework and case study offered above are intended to provide a first step in this endeavour.

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## NOTES

<sup>1</sup> The Scottish Labour-Liberal Democrat coalition government's renewable energy and climate change programmes were broadly aligned with UK government programmes and firmly embedded within them, but the Scottish climate change programme identified both Scotland's equitable contribution to UK emissions reduction targets ('the Scottish share') and a 'Scottish target' which would exceed the Scottish share by a million tonnes of carbon (Scottish Executive, 2006; HM Government, 2006).

<sup>2</sup> The baseline is 1990 for CO<sub>2</sub>, but 1995 for some other greenhouse gases.

<sup>3</sup> Net emissions in 2010 were 1.1 MtCO<sub>2</sub>e above the level of the statutory target (53.652 MtCO<sub>2</sub>e)

<sup>4</sup> The Scottish overall energy target includes 500MW of community-owned renewable electricity and 11% of renewable heat (the latter from a 2011 baseline of less than 3%). The UK target is also relatively ambitious, given its low starting point; only 3.3% of UK energy consumption came from renewable sources in 2010 (DECC, 2011a: 13).



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<sup>5</sup> In nine cases, background noise rendered recording futile, while in several other cases where discussions were politically sensitive, we took the view that greater insight may be gleaned from interviews which were not recorded.

<sup>6</sup> The Renewables Obligation requires licensed electricity suppliers to source a specific and annually increasing percentage of the electricity they supply from renewable sources. The UK white paper on Electricity Market Reform indicated that the RO would be phased out replaced by a Feed-in-Tariff with a Contract for Difference (see DECC, 2011b).

<sup>7</sup> The SNP government initially favoured a target of 34%, equivalent to the UK target albeit covering a broader range of emissions. However, when Labour pushed for a higher target of 40% emissions reductions by 2020, the SNP government outbid them with a 42% target. Since neither party wanted to be seen as less progressive than the other, they both led the whole parliament towards unanimous consent for the 42% target.